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Impact of the Revolution in Military Affairs on Education and Training Professional Structures in Land Forces

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Contents

Introduction

The bipolar order had its myths and meanings, imparted to it by the reality of power, both: within the blocs and between them. With the collapse of these blocs regionalism has triumphed over globalism but without bringing any order.

Consequences of the collapse of the bipolar system for power and meaning are less studied. During the Cold War the superpowers kept in form by training against each other. When the opposition has been dead the current power was in inappropriate form for the new tasks. The powerful West is a winner in the long Cold War against communism. On other side the Great Powers of Europe are powerless to handle the rebellions on their own continent. In the countries of the Third World, where clearly told to people who were their friends and enemies, there they have lost now not only that insurance but also the certainty that there are friends and constant enemies at all.

Exist at least seven potential world orders that compete for recognition as the world heads in to the mid-1990s. Each has some significant features and none is important enough to provide the

dominant structure that the Cold War (or before it, the colonial system) was able to impose.[1]

1. The first model is unipolar and the result of the collapse of one side of the former bipolar world. The United States is still the largest national economy and the foremost nuclear military power, leading initiator and the ultimate enforcer ('the world's policeman') in international affairs.[2]
2. The second model is multipolar system regulated by the countries old mechanism of balance of power.[3] The world of the 1990s is indeed characterized by a number of great powers or power centers whose dominance is even institutionalized in the annual G-7 meetings and (little bit different) in the UN Security Council. Balance of power theory would predict that the US position as the evident hegemon after the collapse of the Soviet Union would lead other powers. Inside these appear two sub-models: very weakness of model I (unipolar hegemony) makes model II (multipolar hegemony) -- equally weak.

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[1] About that see Donald Puchala and Raymond Hopkins. "International Regimes" in Stephen Krasner (ed.), International Regimes. Ithaca: Cornell University Press, 1993.

[2] See more: Robert Gilpin, War and Change in World Politic, 1991; Robert Koehane, After Hegemony, 1984.

[3] Kenneth Waltz. Theory of International Politics. Random House, 1979.

3. The third model is the world institution designed to overcome the ill effects of the first two classic systems -- United Nations.[4] But the brief post Cold War experience of the UN in trying to fill this role has brought out an old and a new lessons, never yet fully learned. UN is still only place, not a thing -- subject in the sphere of the international affairs. UN operations have quickly run up against the limitations of members' contributions.

4. Fourth model of world order presents itself as more precise reflection of reality, a world legislative forum of sovereign states.[5] States -- large and small -- are almost continuos in overlapping sessions (GATT -- General Agreement of Tariffs and Trade; UNCED -- United Nations Conference of Environment and Development; UNCLOS -- United Nations Conference on the Law of the Sea; etc.). This system has no structure, no dominant power configuration, no identity of belief system. It is more a form of activity and not yet a system of world order.

5. Total opposite is fifth model: the division on North and South (or West and East) world.[6] This is a perceived world order, more a

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[4] Very clear is the statement in the 1992 Agenda for Peace of the UN Secretary General Boutros Boutros Ghali.

[5] Approximations of this model are found in Alice Rivlin, David Jones and Edward Meyer, Beyond Alliances, Brooking, 1990; I. William Zartman (ed.) Cooperative Security: Reducing Third World Wars, Syracuse University Press, 1994.

[6] Richard Feinberg and Delia Boylan. Modular Multilateralism. Washington: Overseas Development Council, 1991.

structure of identity and beliefs than of power. By some authors this model has a structure of exploiting the underdeveloped Third World.[7] Some Western and Southern representatives agree in going so far and see North - South (or West - East) conflict as World War IV.[8]

6. The sixth model continues to structure the world on the values of the Cold War - democracy, human rights, market economy - without attributing ideological coherence to the 'other' side.[9] That system converts civil values into foreign policy goals and recreates a loose bipolarity. It seeks to turn a world now finally safe for democracy, human rights and free enterprise into a world of those values. This is world order of organizing beliefs with no specifically related power structures other than those of the states qualified by these values. System is cognitive and purposive device, but not yet world order.
7. The seventh system is a system of no global structure at all, but a world of regions, where order in terms of power and identity is found only in the sub-global level.[10] Europe on this way becomes its

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[7] Immanuel Wallerstein. Capitalist World Economy. Cambridge: Cambridge University Press, 1979.

[8] To some authors existed World (Cold) War III.

[9] Max Singer and Aaron Wildavsky. The Real World Order. Chatman House Publishers, 1993.

[10] W. Howard Wriggis (ed.). Dynamics of Regional Politics. Columbia University Press, 1992, and Patric Cronin (ed.). From Globalism to Regionalism. Washington: National Defense University Press, 1993.

own Community, concerned with its own security and identity, depending for 60% on its own internal market. North America becomes its own free-trade area.

All of these characterize the world today. None system of them dominates. All transitions are somewhat disorderly and sometimes has seen as period of weak or confused world order. The result is uncertainty and confusion. And in all that or similar conditions (nowadays, in the past and in the future) all (nation) states care about independence and want (independent) place in world society. In that purpose they built up and/or transform military power for "continuation of policy by other means."[11]

Analyzing[12] the military (man)power and the structures in continuation is in our focus because of estimation how and on what way in real life all facts of real international relations and changes in structure of military power influence in long term on decisions about that tool for politics by other means.

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[11] Carl von Clausewitz. On War. Princeton: Princeton University Press, 1989: 87.

[12] States in next figure are chosen because theirs military are: (1) or world power (US); (2) or rising power (China); or mostly professional structure (Canada); or armed forces in transition (Hungary); or they are neighbors of Slovenia: Italy, Austria, Hungary, Croatia; or they are interesting from the point of Slovenia because theirs systems consist of some comparable elements.

State	Active 1970	Reserve 1970	Active 1996	Reserve 1996	Troops 1970	Troops 1996
Austria	49 000	n/a	55 800	91 800	49 000	146 600
Canada	70 425	22 900	70 500	27 650	93 325	118 150
China	2 780 000	1 600 000	2 935 000	1 200 00	4 380 000	4 135 000
Croatia	n/a	n/a	64 700	220 000	n/a	284 700
Denmark	44 500	69 500	32 900	70 450	114 000	103 350
Finland	39 000	700 00	32 500	500 000	739 000	532 500
France	506 000	540 000	337 000	383 900	1 046 000	720 900
Hungary	101 500	163 000	64 300	173 000	264 500	237 500
Israel	75 000	225 000	175 000	430 000	300 000	605 000
Italy	413 000	630 000	325 150	584 000	1 043 000	821 150
Luxembourg	550	0	800	0	550	800
Qatar	2 200	0	11 800	0	2 200	11 800
Singapore	14 800	6 000	53 900	221 000	20 800	274 900
Slovenia	n/a	n/a	9 550	53 000	n/a	62 550
Sweden	82 000	545 500	62 600	729 000	627 500	791 600
Switzerland	27 500	628 500	3 300	396 000	656 000	399 300
United States	2 188 500	973 500	1 483 800	1 880 600	3 161 000	3 364 400

Figure 1: Manpower structure in 1970 and 1996

In Table 1 are compared data about structure and number of troops in some states. Structures are very stabile and depend of many reasons - not only of political changes and threat recognized by ordinary citizens. Long term political decisions are (mostly) different than daily politics. In whole the world structure has rested between the capacity to define purpose and the capacity to generate power (economic and military).

For our analyzing are more comparable data about per cent of GDP, anticipated for defense. In Table 2 all data are more comparable. Some changes are going on more because of internal tensions than other reasons.

State	1972 per capita	1972 % GNP[13]	1985 per capita	1985 % GDP	1995 per capita	1995 % GDP
Austria	27	1.0	233	1.2	264	1.0
Canada	90	1.9	421	2.2	320	1.6
China	n/a	n/a	26	7.9	26	5.7
Croatia	n/a	n/a	n/a	n/a	406	12.6
Denmark	88	2.2	558	2.2	599	1.8
Finland	39	1.5	418	2.8	414	2.0
France	121	3.1	808	4.0	826	3.1
Hungary	40	2.7	485	7.2	60	1.4
Israel	404	18.2	1,630	21.2	1,279	9.2
Italy	60	2.7	411	2.3	346	1.8
Luxembourg	29	0.8	238	0.9	348	0.9
Qatar	n/a	n/a	n/a	n/a	600	4.4
Singapore	113	9.4	634	6.7	1,349	5.9
Slovenia	n/a	n/a	n/a	n/a	139	1.5
Sweden	184	3.6	522	3.3	687	2.9
Switzerland	87	1.8	408	2.1	720	1.9
United States	399	7.2	1,473	6.5	1,056	3.8

Figure 2: Defense expenditure per capita and as % of GNP/GDP

Military structures are more stabile (less changeable) part almost in all societies. Some changes probably appeared because of redefinition of tasks, changes in relations between states, new doctrines, new technologies, etc. In our research we are focused on those changes and their direct impact on the professional education in land forces.

[13] In The Military Balance the use of GNP (in 1970s) and GDP (later) is not consistence.

1. Some Elements of the Revolution in Military Affairs

1.1. What is the Revolution in Military Affairs

Discussions about the Revolution in Military Affairs (RMA), the Military-Technical Revolution (MTR), and Information Age Warfare are often present in our everyday life. "The Department of Defense's Office of Net Assessment defines RMA as a major change in the nature of warfare brought about by the innovative application of technologies which, combined with dramatic changes in military doctrine, and operational concepts, fundamentally alters the character and conduct of operations."[14] General Gordon R. Sullivan discussed about definition[15] and found out that the lost of that definition is the nature of war, "which remains a complex interaction in of political objectives, human emotions, cultural, and ethnic factors, and military skills. In pursuit of political objective, warfare is violence articulated through strategy which is a balance of ends, ways and means. Technology and technological innovations, while affecting the way wars are or might be fought, remain means to an end."[16]

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[14] Tilford, Earl H., Jr. The Revolution in Military Affairs: Prospects and Cautions. Carlisle Barrack: Strategic Study Institute, 1995: p. 1

[15] Sullivan, Gordon R., and Dubik, James M. Land Warfare in the 21st Century. Carlisle Barrack: Strategic Study Institute, 1993: 22 - 24.

1.2. Framework of the Current Revolution in Military Affairs

Experts agree on a number of important issues, but agreement on some other critical points is not present. First, mostly is accepted that RMAs is more then just new military technologies or systems and involve complex operational and organizational issues -- but without agree about priority among elements and identity of the key driver (if only one exists).[17] Second, little attention has been paid to the broad strategic implications that place RMA in its long-term historical context for future changes in the conduct of warfare. Third, the defense experts mostly agree that there is an RMA to be pursued to start , whether it is already in progress or it is about to end. Fourth, there is no agreement concerning the character of RMA - i.e., a specific definition of this RMA and not only identification of technical elements. Fifth, agreement exists that a focus should be on careful implementation.[18]

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[16] Tilford, Earl H., Jr. The Revolution in Military Affairs: Prospects and Cautions. Carlisle Barrack: Strategic Study Institute, 1995: 1.

[17] "The current RMA is characterized by four types of changes: -- extremely precise, stand-off strikes; -- dramatically improved command, control, and intel-ligence; -- information warfare; and -- nonelethality." Steven Metz, James Kevit: Strategy and the Revolution in Military Affairs: From Theory to Policy, US Army War College, 1995: v.

[18] More about that: Cooper, Jeffrey R. Another view of the Revolution in Military Affairs. Carlisle Barrack: Strategic Study Institute, 1994: 1.

Analysts see a number of benefits from the current revolution in military affairs and using it to build future US armed forces: (1) rejuvenating the political utility of military power; (2) delaying the emergence of a peer competitor; (3) providing a blueprint for technology acquisition and force reorganization; and (4) inspiring conceptual, forward looking thinking.[19]

Strategists who seek to understand and use the revolution in military affairs do not have a mature theory. The raw material of theory are hypotheses that can be tested, debated, confirmed, or rejected. That hypotheses can be: (1) hypotheses on the configuration of the revolution in military affairs;[20] and (2) hypotheses on the process of the revolution in military affairs.[21]

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[19] See Steven Metz, and James Kevit: Strategy and the Revolution in Military Affairs: From Theory to Policy. US Army War College, 1995: vi. Most analysts believe that the current revolution in military affairs will have at least two steps. The first is based on stand-off platforms, stealth, precision, information dominance, improved communications, global positioning systems, computers, digitalization, 'smart' weapons systems, jointness and ad hoc coalitions. The second step may be based on robotics, nonlethality, psycho- technology, cyberdefense, nanotechnology, 'brilliant' weapons systems, hyperflexible organizations, etc.

[20] Hypotheses on the configuration of revolutions in military affairs are:

- There are "major" and "minor" revolutions in military affairs.
- "Minor" revolutions in military affairs tend to be initiated by individual technological or social changes, occur in relatively short periods (less than a decade), and have their greatest direct impact on the battlefield.
- "Major" revolutions in military affairs are the result of combined multiple technological economic, social, cultural and/or military changes, usually occur over relatively long periods (grater than a decade), and have direct impact on strategy.
- "Minor" revolutions in military affairs can be deliberately shaped and controlled; "major" can not.
- A "minor" revolutions in military affairs driven by military applications of silicon-chip technology is underway, and the next "minor" revolution will be driven by robotics and psychotechnology.
- In the future, "minor" revolutions in military affairs will occur closer together than in the past, almost to the point of continuos revolution.

In all cases it is necessary to find out compromise that cost and risks outweigh the expected benefits. Mostly that risks may be: (1) the current RMA will not generate increased combat effectiveness against the most likely or most dangerous opponents; (2) American pursuit of the RMA will encourage opponents or potential opponents to seek countermeasures; (3) the current RMA might lead the United States toward overreliance on military power; and (4) powerful pursuit of the

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- The world is potentially at the beginning of a "major" revolution in military affairs resulting from the interaction of multiple economic, social, and cultural changes driven by silicon-chip, robotics, psycho- and bio-technologies.
- The increase of combat effectiveness due to sequential revolutions in military affairs has tended to be cummulaive, but effectiveness is also relative - not an absolute - measurement.
- Revolutions in military affaisr, while increasing some aspects of combat efectiveness, may either decrease or increase the strategic utility of the military element of power.

Steven Metz, and James Kievit: Strategy and the Revolution in Military affairs: From Theory to Policy. US Army War College, 1995: 10.

[21] Hypotheses on the process of revolutions in military affairs are:

- Revolutions in military affairs are cyclical processes.
- Revolutions in military affairs can be initiated by one breakthrough power or by a group.
- In the modern security system, revolutions in military affairs are usually inspired by outright defeat, or by a perception of inferiority or decline versus a peer or niche opponent.
- Initiating a revolution in military affairs requires the empowerment of visionaries.
- Revolution in military affairs have a point of critical mass when changes in concepts, organization and technology meld.
- Once recognized, every revolutionary breakthrough generates responses.
- Responses to revolutions in military affairs can be symmetric or asymmetric; asymmetric responses may be more difficult to counter.
- The greatest advantage for the breakthrough power lies in the period immediately following critical mass; thus there may be a temptation to initiate conflict before responses can be effective.
- All revolutions in military affairs have a culminating point determined by the interaction between the revolutionary breakthrough and the responses, followed by the consolidation phase.
- During the consolidation phase, superior training and leadership may be the only ways to achieve superior relative combat effectiveness against symmetric responses.
- During the consolidation phase, strategic advantage lies with entities best able to employ politico-economic, as opposed to strictly military, power.

Steven Metz, and James Kievit: Strategy and the Revolution in Military affairs: From Theory to Policy. US Army War College, 1995: 12.

current RMA might increase problems with friends and allies.[22] When and if policy makers decide to pursue the revolution in military affairs, strategy, they must answer on question: What do we want that the future military to be able to do? All future revolutions in military affairs, technological development[23] and military framing depend of answer on question above.

[22] More about that in chapter: Choices in Steven Metz, and James Kievit: Strategy and the Revolution in Military affairs: From Theory to Policy. US Army War College, 1995: vi - ix.

[23] Five key technology areas were seen as offering promise to greatly amplify capabilities of today's individual soldier: (1) Micro technologies could provide him with miniature sensors, monitors and display systems. (2) Future information technologies could link the soldier horizontally and vertically in the force, and even to distant sensors and databases. (3) Autonomous system such as unnamed ground vehicles and unnamed air vehicles could give him platforms for sensing, weapons, and mobility. (4) Exotic materials could provide some degree of armoring and signature reduction. (5) New energy technologies are needed to efficiently power the many components of this future warrior.

2. Development of Defense and/or Military Strategies an Doctrines

By definition strategy is "the art and science of developing and using political, economic, psychological, and military forces as necessary during peace and war, to afford the maximum support to policies, in order to increase probabilities and favorable consequences of victory and to lessen the chances of defeat." (Joint Pub 1-02: 364). Military is executive subject and for realization of tasks in establishes (military) doctrine, i.e. "fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives. It is authoritative but requires judgment in application." (Joint Pub 1-02: 121).

An evolution in doctrine, strategy, and tactics places new types of actions, flexibility, coordination, initiative, ... New concepts require excellence in professionalism and military skills by leaders at all levels.

Military organizations are unique in daily preoccupation: mostly with training[24] and preparation. Many units never realize the final role towards which their training is directed. Training and education of military personnel tends to go beyond the training in the specific

[24] The word training becomes an omnibus term which at times seems to overlap with what in other concepts be distinguished as separate concepts such as indoctrination, socialization and education. In Dictionary (1995) to train means: "To guide the mental, moral, etc. development." To educate means: "To develop the knowledge, skill, or character of, esp. by formal schooling." In this essay, we understand education primary as formal schooling -- basic and advanced (with temporary absence from job) -- and training as development of (professional) personnel on duty.

tasks and it also involves training in the coordination of those tasks in larger unit.

State	Troops /km^2 1970	Troops/km^2 1996	Troops /% of people 1970	Troops /% of people 1997
Austria	0.584	1.748	0.661	1.830
Canada	0.009	0.012	0.436	0.416
China	0.456	0.431	1.267	0.342
Croatia	n/a	5.063	n/a	6.189
Denmark	2.647	2.400	2.303	1.978
Finland	2.193	1.580	15.657	10.399
France	1.912	1.318	2.062	1.235
Hungary	2.843	2.552	2.562	2.339
Israel	14.444	29.129	10.345	10.571
Italy	3.462	2.762	1.921	1.419
Luxembourg	0.213	0.309	0.162	0.196
Qatar	0.200	1.073	0.733	2.127
Singapore	32.859	391.627	1.015	9.203
Slovenia	n/a	3.081	n/a	3.112
Sweden	1.319	1.759	7.824	8.977
Switzerland	15.888	9.671	10.413	5.616
United States	0.337	0.359	1.540	1.267

Figure 3: Enrollment of People in Defense System

2.1. Basis of the Defense System in Austria

In 1965 Austria identified several different threat scenarios: (1) crisis situation, in which international tensions and the risk of conflict increases; (2) a neutrality situation, in which neighboring countries are at war; and (3) a defense situation, in which Austria is under attack. The assessment that the aggressor would seek surprise and implement combined arms operations of overhelming air and land forces were

shown to be correct. In view of the increased offensive capability of both superpowers, area defense was chosen as the strategic concept. In the development of the doctrine a solution was sought to a situation in which the aggressor attempted rapidly to take important areas even in interior. Area defense has been executed by the selection of the easily defendable key zones whose access roads could be blocked. Key areas within the zones have been fortified to ensure that the zones are held. Lands between the zones are regarded as security areas and would be used primarily to secure operations. The enemy would be engaged only lightly in these areas.

The increased threats of surprise attack and outside intervention that Austria felt in the 1980s encouraged her closer attention to mobilization, defense readiness and troop composition. Readiness forces that would be in constant alert mode were created to respond quickly to any crisis situation. The forces were to be equipped with modern weapons.

Development in the air forces of the Great Powers has had several implications. Air defense has been improved, despite a clause in the State Treaty about limits on such activities. The efficiency of the command system and assuring the ability to mobilize received close attention. Advances in arm's technology were considered often to place the defense capabilities of small nations in doubt. Austria responded

to the challenge by increasing the number of its troops and by equipping and training them in accordance with the requirements of modern warfare. Large scale demonstrative military exercises were yet another part of the policy.

Since Austria does not have a frontier guard, border tasks have fallen on the shoulders of the Bundesheer. Policy makers also would like that the Bundesheer to assist in catastrophes at home and abroad, to provide technical assistance at accidents, to protect citizens in a broader way than before and to assist in international tasks of verification, observation of maneuvers, peacekeeping and military training.[25]

In Austria were proposed reductions in the size of the military and suggested that of each age group cohort inducted should be trained as frontier guards and environmental protection forces. Restrictions on Austrian military purchases were nullified on 6 November, 1990. Austria is now able to purchase missiles and aircrafts those contain German or Japanese parts. Evidently defensive surface-to-air missiles are also become a part of the Austrian doctrine.

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[25] See Horst Pleiner, "Aktuelle militarstrategische Entwincklung und mogliche Auswirkungen auf das Bundesheer der neunzige Jahre," Osterreichische Zeitschrift No. 5 (1990): 369 - 379.

2.2. Basis of the Defense System in Finland

The Finnish defense doctrine is based on the functions of the defense forces prescribed by law and the principle of area defense that became policy in 1966. Policies have been formulated in decisions concerning the objectives, grounds, specific task and practical execution of military activities and how these relate other aspects of national defense. A specific written summary of military doctrine did not exist before the CSCE doctrinal seminars in 1990 and 1991.

In accordance with neutrality the possible aggressor is not named. Military activities would probable be the result of larger European conflict in which Finnish territory was threatened by outside exploitation and transit. Implicit in Finland's concept of territorial defense is that resistance begins at the country's borders. The enemy is denied access to critical areas by halting its attacks in areas of terrain advantageous for defense. Local defense and guerrilla are important on the flanks and in the rear of the invader. Although Finnish doctrine has remained essentially the same, some modifications have been made in response to the new arms technology.

Development of the army to agree with doctrine has been difficult. During the past decades, improved mobility of the opponent,

enlargement of battle area, increased firepower and better armored protection posed new challenges for the defense system, and the principles of troop employment had to be re-evaluated. Fighting units were devided into two distinct categories: fast deployment and main forces. Great improvement were made in the mobility, firepower, anti air and anti tank weaponry, and armored protection of the fast deployment troops, whose task is to buy time by wearing down and slowing the invader.

The goal for the 1990s is to equip the major troops in keeping with the chances that have taken place at the battlefield level. Battle readiness will be improved by emphasizing mobile operations and flexibility, which are elemental parts of active defense. The greater threat of attack to the rear increases the importance of local defense. In contemporary statement are listed the military threats in 1990s in the following order: (1) a surprise attack to defeat the state; (2) an offensive against a third party through Finnish territory; and (3) a large scale attack to invade the country. To some extent this order is reflected in the development of the different sectors of national defense.

2.3. Basis of the Defense System in Israel

Israeli Defense Force were born in 1948 during the War of Independence, but the forces that would unite into that army were already growing under the Haganah, the Jewish communities' self-defense force. In that time grew up future military leaders and theirs ethos: (1) personal example of the commander; (2) the demand for careful operational discipline; (3) careful planning; (4) the inclusion the subordinates as partners in thought and action; (5) exploitation of surprise and mobility; (6) the importance of ideological inspiration in war; and (7) a total appreciation of and taste for night operations.

In Israeli Defense Forces' post War of Independence analyses is written: "There is no doubt that the strategy of indirect approach is the only sound strategy ... To exploit the principles of war ... so as to determine the issue of the fighting even before the fighting has begun, it is necessary to achieve the three following aims: (a) cut the enemy's lines of communication, thus paralyzing his physical build-up; (b) to seal him off from his lines of retreat, thus undermining the enemy's will and destroying his morale; (c) to hit his centers of administration

and disrupt his communications, thus severing the link between his brain and his limbs."[26]

The composition of Israel Defense Force (professionals, conscripts -- drafted into compulsory military service for 2 and 3 years, and reservists) has contributed to Israel's image as an armed nation. For most of Israel's history the primary military task have been defense against the conventional attack neighboring armies. To some extend the reduction of operational commitments have been offset by the emergence and/or intensification of other challenges: (1) intra border Palestinian insurgency; (2) persistent conflict along Lebanese border , and (3) missile attacks (conventional and non-conventional) by states in broader neighborhood.

Strategic planning and military thinking based on the philosophy of indirect approach: the line of least expectation, careful adjustment of means to ends, flexible planning, dislocation of enemy forces. By the strategy of indirect approach, a frame of mind characterizes the

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[26] Yigal Yadin, cited in B. H. Liddell Hart. Strategy, New York: A. Praeger, Publisher, 1967: 397. Yigal Allon in The Making of Israel's Army, New York: Universe Books, 1970: 44 writes: "...a habit of deeply rooted purposefulness, idealism, and belief in voluntary service; a spirit of comradeship and mutual responsibility, among units and ranks as well as individuals ... The freedom from absolute army tradition that had been so conspicuous a feature of the Haganah passed, virtually unchanged, into the new army. As far as military forms and conventions were concerned, it adopted only the minimum necessary for securing discipline and efficiency."

planning process, more than fixed set of rules or principles. Considerable attention is given to the study of the enemy character.[27]

Strategic planning leaves the greatest possible freedom for commanders in the battlefield. The doctrine stresses: initiative, flexibility, improvisation, and the freedom of local commanders to exploit unexpected developments and change the original operational plan as long as they maintain and achieve planned objectives. Great attention is laid to the quality of middle and lower commands because so much freedom for maneuvering and decision can be left for the tactical level (Israel's policy of reprisals is a part of deterrence). In that situation stresses quality over quantity and use of highly trained and motivated personnel is understandable. Related to these standards should be maintenance of equipment too.

2.4. Basis of the Defense System in Singapore

During the late 1960s and early 1970s, the Singapore government laid the foundation for a national security system based on total preparedness, which involved more than 10 percent of the adult population in some type of national service. After 1967 all males were required to register for two years national service at age sixteen.

[27] Lidell - Hart. Strategy of Indirect Approach: 333 - 372.

By 1989 almost all males under the age of fifty had received military training in the armed forces, or training in the police force or in a public service related to civil defense.

Singapore's national security perceptions were influenced by the country's size and geographic location and by changes in the regional military balance. The military planners recognized that if it was attacked by a larger power, Singapore could not defend itself with its own resources for more than a few weeks. However, they believed that the total preparedness for war of the country's military and civilian population would deter potential enemy from Singapore as an easy target for aggression.

Singapore's foreign policies were carefully planned to provide national security considerations. From 1965 to 1989, subversive groups posed no threat to Singapore's political system, and there was no return of the ethnic and communist-inspired disturbances of the 1950s and early 1960s.

The military system was designed that provide an effective fighting force that could be partly or fully mobilized in emergencies and yet would maintain a low level of preparedness during peacetime. Because the reservists are as the backbone of the armed forces, particular emphasis is placed on mobilization training.

The Civil Defense Act of 1986 defined the mission and responsibilities of the Civil Defense Force, which had been established in 1982. By the early 1980s, the armed services had a surplus of conscripts, and the government decided to expand the national service system to include civil defense organizations. By 1989 Singapore had ten operational civil defense divisions and had organized civil defense programs in each of the country's fifty-five legislative districts.

Nowadays the People's Defense Force (with 30,000 members organized under two commands, and the National Cadet Corps, with an enrollment of 20,000 high school and university students) were Singapore's only paramilitary organizations. The People's Defense Force was established in 1965 to absorb former members of several paramilitary organizations that had been part of the Singapore Volunteer Corps. By 1980, however, fewer than 200 volunteers remained in the volunteer force, and most of its personnel were national servicemen who had completed their twenty-four to thirty months of active duty. These personnel were assigned to units of the People's Defense Force to complete their reserve obligation. The ministries of defense and education were jointly responsible for the administration of the voluntary National Cadet Corps, which had army, air force, and naval components. Approximately 10 percent of

the nation's high school students participated in this extracurricular program. The legal framework for the People's Defense Force and National Cadet Corps was provided by parliamentary acts passed in 1965 and 1971.

The Army General Staff had operational responsibility for the People's Defense Force. Characteristics of the organization and missions of units of the two People's Defense Force commands of course have been similar to those found in the army reserves. Guarding coastal areas and local administrative jurisdictions against possible sabotage and other military actions during wartime or a national emergency were the most likely assignments for battalions.

2.5. Basis of the Defense System in Sweden

The Swedish Parliament approved basic security goal -- to preserve the country independence -- in 1968 and confirmed it in 1972, 1977, 1982 and 1987. One of the principles was determination to defend themselves without entering into alliances with other states. The total defense of Sweden consist of the military - defense forces, civil defense and economic defense. In the 1960s in Sweden they widely studied the implications of nuclear weapons for the battlefield and the main questions about rear. Even about acquisition of Swedish nuclear

deterrence they discussed. Since than the Swedes have been content with protecting their military and civilian population from nuclear attack. The longer range of tactical aircraft and the deployment of long-range cruise missiles in the 1980s posed a growing threat to Swedish airspace. At that time were very actual questions about forward bases and surveillance facilities in Swedish territory for the needs of alliances.

Because of increasing number of crises and armed conflicts in the mid-1980s the Swedish began to feel a degree of uncertainty. Territorial violations and new types of threat were seemed possible.

Before the 1980s Swedish doctrine was defensive. Potential invaders were to be stopped as far as possible from the border. Because of Sweden's limited resources to develop its military forces they began with changes in doctrine. By early 1990s the new doctrine required that the possible invader be prevented from obtaining a solid foothold on Swedish territory and quickly using it for his own purposes. The defense capabilities were maintained at the borders and in the interior of the country. The battle was to begin at the borders flexible and regionally, where it was possible, and the invader was to be pushed back at least before reaching his operational goals.

The principles that had been announced in 1982 remained valid until the end of the decade. A process of rationalization was began with creation of more effective forces based on new technology.

Development of the army proceeded with a view to the increased threat from the air and need for a defense against fast moving ground forces. Fighting capabilities, firepower -- especially anti-tank capabilities -- and mobility were in focus. Since the threat of an air mobile attack remained great it was recommended that the forces should be dispersed throughout the country. A model of counterattack by small units over a wide area was included in the army battle manuals. The model called for the use of small, efficient units to splinter the invader's forces and destroy them piece for piece. Doctrine specifically emphasized the need for a large number of units. The defense of key installations was stressed in view of the increased threat from air mobile attacks and sabotage activities. Less well-equipped brigades were to be used along with new and better equipped local units for this purpose. Large mobile reserve forces were regarded as necessary to move the focus of action according to the threat.

The radical changes in Europe in 1990s created confusion in Swedish defense policy. In 1992 Parliament considered a proposal that would close fifteen bases and cut personnel by as much as 25%. The number of brigades would drop to under twenty, and only ten of them

would receive modern equipment. The defense forces, now reduced in size, are to be able to repel a surprise attack on short notice. Providing it could be used flexibly in different party of the country, a smaller, crisis management force would be adequate.

2.6. Basis of the Defense System in Switzerland

In 1971 a new security policy and a comprehensive defense plan were made public in Switzerland. The strategic defense doctrine were based on a two component model providing for; (1) general peacekeeping and crisis management, and (2) military and civilian defense aimed at achieving "Peace and Freedom." The task of the military defense were to prevent war by maintaining a defense readiness, repelling attacks against Switzerland territory and assisting civilian authorities.

The principles of the doctrine were inspired by historical experience, and the operational practices drew, among other things, on WW2 troop position. The militia was to engage the enemy at the borders and the battle was to be fought in defensive zones that had been mined and fortified during peacetime.

The importance of crisis management were stressed in the early 1980s. The modern weaponry of the two major alliances surrounded the country and posed various levels of threat, ranging from mild tension to invasion. Within the context of total defense, peace should be guaranteed by preventing. Defense contingency plans were developed in response to various threat scenarios. The increased threat of a surprise attack suggested the need to improve the already existing capability and mobilization. Special readiness forces were formed to fight the battles of the first few hours.

The Swiss were prepared to continue the battle by guerrilla tactics. Deep enemy strikes were to be met by tank and air force counterattacks.

The recent changes in Europe in general have necessitated a re-evaluation of Swiss security policy. Significant doctrinal assessment is the defense forces reform, "Armeereform 95." The main goals of new security policy are: (1) maintenance of peace while free and independent; (2) maintenance of freedom of action; (3) protection of citizens and their basic rights; (4) territorial integrity; and (5) promotion of international stability, especially in Europe.

The restatement of policy indicates a change in threat perception, a change influenced, among other things, by advances in arms

technology. New security and political tasks have been assigned to the defense forces. The Swiss emphasize that they by no means intend to weaken their traditional defense.

2.7. Basis of the Defense System in United States of America

In April 1950 National Security Council issued memorandum NSC 68 and set in action militarization of United Sates' foreign policy and the containment strategy that would last for many years. A decisive sentence in NSC 68 asserted that "without superior aggregate military strength, in being and immediately readiness, a policy of 'containment' - which is in effect a policy of calculated and gradual coercion - is no more than a policy of bluff."[28] NSC 68 called for assuring "the integrity and vitality of our free society, which is founded on the dignity and worth of the individual." ... and for "our determination to create conditions under which our free and democratic system can live and prosper." In document appeared very important statement about balance of power and American security had become depend as much on perceptions of the balance of power as what that balance actually was. By document it was necessary to

[28] Charles W. Kegley, Jr., and Eugene R. Wittkopf: American Foreign Policy - Pattern and Process. New York: St. Martin's Press , 1996: 87.

realize nonmilitary counteroffensive against Soviet Union which included covert economic, political, psychological warfare in goal to evoke revolt inside Soviet bloc countries. Soon American foreign policy became highly dependent on the possession of powerful military, paramilitary, and related instruments through which its fundamental goals could be pursued.[29]

The strategy of flexible response devised by the United States' presidents became as the official NATO defense posture in 1967. The strategy suggested that the United States and allies would poses the capabilities to respond to an attack by hostile forces. This strategy anticipated increased conventional war capabilities as a substitute for nuclear counterstrike. In 1962 capability to carry on "two and half wars" at once appeared as official policy. Nixon changed that policy into "one and half wars." That doctrine called for a lower American profile in the post Vietnam era and for greater participation by allies in their own defense.

Carter administration initiated plans to develop a Rapid Deployment Force (later US Central Command) capable for military intervention around the world to defend American interests. Reagan administration adopted more confident position toward the nation's

[29] See ibid.: 87.

global aspirations. It unburdened belief that any conventional war with the Soviet Union would be short and either be settled by negotiation or escalate to a nuclear confrontation. Military planning now based on the assumption that such a war would be prolonged and global. The aggressive position prepared the development of new defensive concepts in Europe, such as Air-Land Battle, which anticipated close air force support of army combat maneuvers on the ground.

Today is no overarching goal.[30] Current military technical development indicates revolution in military affairs and asking for transformation of military doctrine, training, organization, equipment, tactics, operations and strategy in a coherent figure in order to conduct war in a novel of more effective manner.

Nowadays exists two strategic concepts: (1) overseas presence; and (2) power projection. Overseas presence existed in the form of permanently stationed forces and temporally deployed abroad. The

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[30] Les Aspin made attention to the contrast between the Cold War and the post Cold War: "In the old world there was only one thing that posed a threat. It was Soviet Union. In the new world, there will be diverse threats.
In the old world, the very survival of our nation was the stake. In the new world, the interests of our nation will be at risk.
In the old world, we knew what threatened us. In the new world, we will have to learn what threaten us.
In the old world, the policy of deterrence reduced the threat of nuclear war. In the new world, deterrence will not always stop an adversary from threatening Americans and American interests.
In the old world, the two superpowers had thousands and thousands of nuclear weapons and were prepared to use them. In the new world, many nations and groups will vie to acquire nuclear weapons."

existence of a credible power projection capability complements US overseas presence in acting as a deterrent to adversaries.

Basic components of strategy are: (1) peacetime engagement; (2) deterrence and conflict prevention; and (3) fighting and wining nation's wars. Peacetime engagement consist of a broad range non-combat activities by US armed forces that demonstrate commitment, promote democratic ideals, improve collective military capabilities, and enhance regional stability. The elements of peacetime engagement include mil-to-mil cooperation, different types of assistance, peacekeeping . Deterrence and conflict prevention is a product of many concepts and programs which include crises response, arms control, non-combatant evacuation operations, sanction enforcement, peacekeeping and others.

The combat forces and supporting capabilities are built on five fundamental foundations: (1) high quality of men and women; (2) readiness; (3) force enhancements; (4) modernization; and (5) balance.[31]

[31] More: Chairman of Joint Chiefs of Staff: National Military Strategy of the United States of America 1995 - A Strategy of Flexible and Selective Engagement. Washington, DC: US Government Printing Office, 1995.

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All strategies and/or doctrines are (total) different and in each are shown specific elements in sense of countries' needs in defense area. Only in US documents are met elements of the revolution in military affairs. In all others exist words as: innovation(s), development, evolution, etc.; probably all countries account on future development, but no one of chosen case studies did not anticipate revolutionary changes in the area of military affairs.

In all strategies and/or doctrines is discussed about significant technological changes for land warfare: (1) lethality and dispersion; (2) volume and precision of fire; (3) mass and effects; (4) invisibility and detectability; and (5) integrative technologies. Changed threats and developments drive adjustments in tactics, organization, doctrine, equipment, force mix, and methods of command and control. States' leaders believe that all these changes indicate that smaller land forces can create decisive effects if new weapon systems are used by quality, well trained, and well led troops.

3. Common Basis of the Education and Training

Education and training strategy of professionalists in land forces should have components of personal development and military training. "When considering the full spectrum of education and training, ... a minimum five categories need be cited."[32]

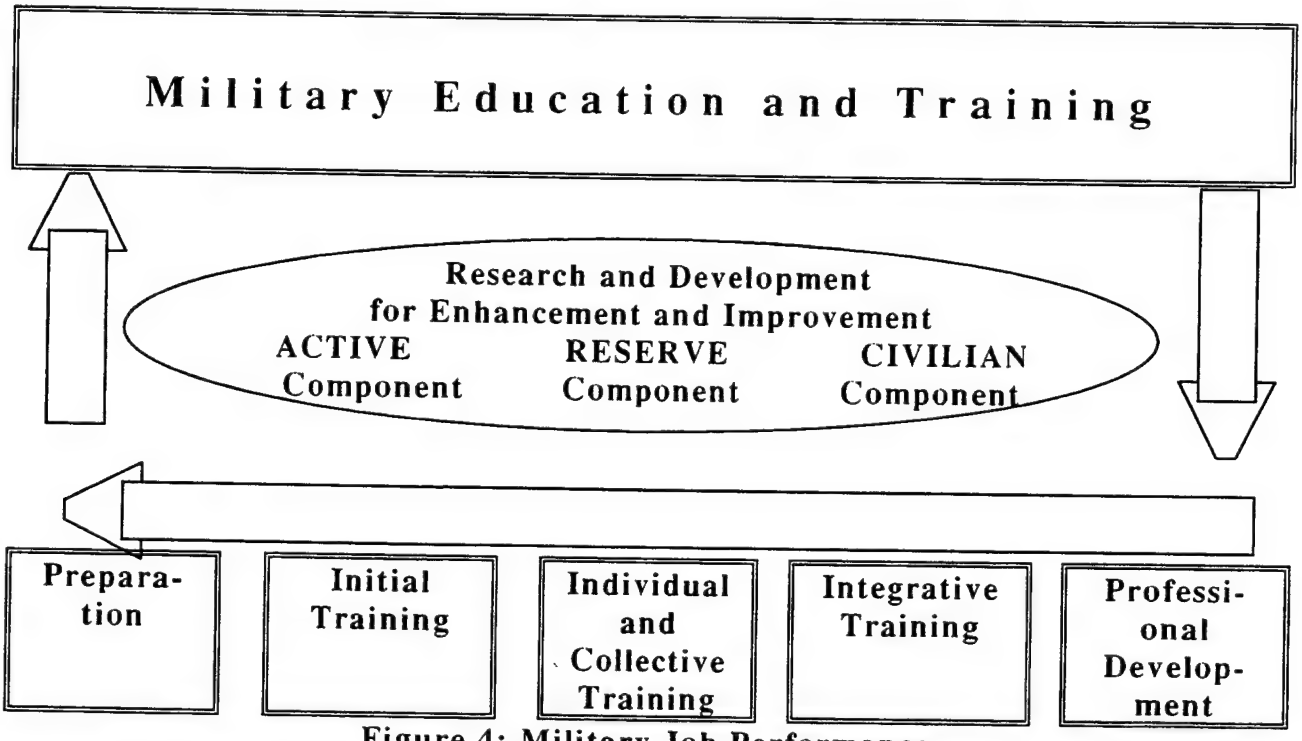

Figure 4: Military Job Performance

All five categories promote better individual and unit performance in peace time, during mobilization, and during wartime. Each training and education strategy should provide criteria for standardization and for technology applications to training and

[32] Michael D. Stephens. The Education of Armies. New York: St. Martin's Press, 1989: 84.

education programs. Nevertheless, evaluations and lessons learned from training and education and field experience provides feedback to the strategy planners and programmers to improve management and techniques and systems development. The training, research and development activities work toward the enhancement of education and training through developing model programs, applying advanced instructional technologies, and solving research questions.

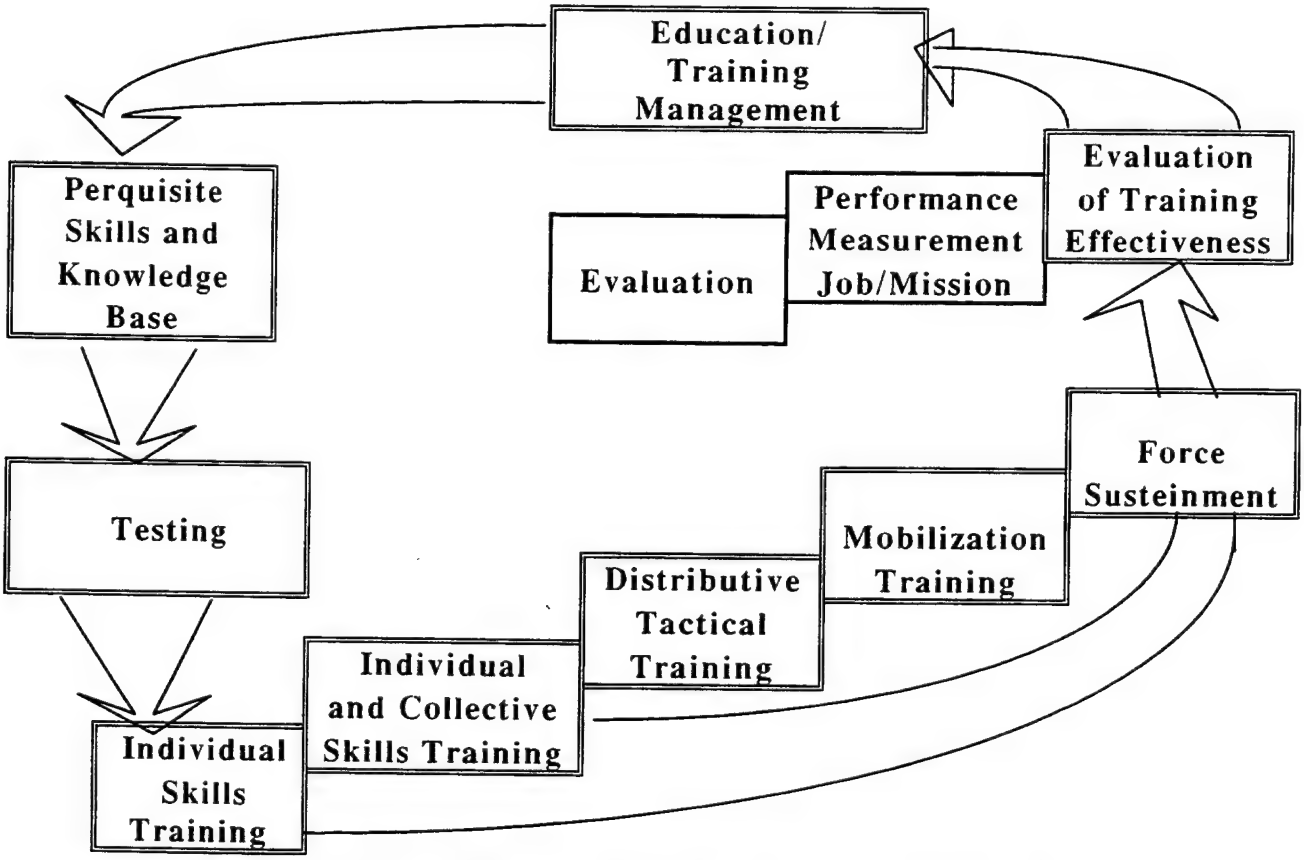

Figure 5: Basic Elements of Education and Training

Methods of education and training consist of five instructional development phases: (1) analyses of the job and establishment of

precise instructional parameters; (2) design of instructions; (3) development of instructions; (4) instructional program implementation; and (5) evaluation.[33]

Basically, as von Baudissin (1973) figured out: "The planning of effective education and careers for officers should be based on what is professionally required of them in a given sphere." When this is looked at more closely, evidently such planning is linked to the existence of four areas of this professional education and training. First, such education and training have been accepted as a means of imparting specific professional knowledge and skill. Basic problem is the appropriate identification of the basic characteristics of such knowledge and skill. The most important question is: What, in reality, is the precise professional skill needed by an officer? Second, military education is a way of promoting professional socialization. Basic purpose of such socialization is the creation of a distinctive homogeneous group. Third, armed forces are the perfect example of the almost total fusion of profession and bureaucracy. Since officers are both -- professionalised bureaucrats and bureaucratized professionals -- one important objective of military education and training is the successful induction of the individual into the

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[33] See Bloom, R. K.: Taxonomy of Educational Objectives Handbook: Cognitive Domain. New York: McKay, 1956, and Gagne, R. M., and Briggs: Principles of instructional design. New York: Holt, Rinehart & Winston, 1979.

organization. Fourth, the most important part of professional education and training in the armed forces is the socio-political (civil) education of officers. On that way it is possible to create among officers a system of beliefs that improve effective military cohesion and performance. Effective military leadership and professional training together create common sense, spirit.

With increased rank come greater responsibilities and broader horizons.[34] The crucial question in designing a system of training and education of field grade officers[35] is how to meet land forces' requirements in adequate proportion. How much training field grade officers need? Are there some minorities who require broader and more intensive education to prepare them for high-level staff duties? If so, how many should receive this education and of what it should consist?

Increased demands for officers' knowledge in all specialties during mobilization influence on the way of officers' training and

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[34] Army Focus 94 describes these future leaders as "highly skilled and well trained to adapt to complex, dangerous and very changing situations. They will be characterized by the ability to successfully integrate and capitalize on the advantages of the technological changes available to Force XXI." Department of the Army, Army Focus 94. Force XXI: America's Army in the 21st Century. Washington, DC: Department of the Army, September 1994.

[35] At the grade level it is almost necessary to reinforce the concepts of transformational leadership, innovation and initiative, adaptability and creativity. It is necessary to develop operational competency with joint and integracy components, change leadership and interdependency group dynamic. At this stage, at senior grades, it is necessary to reinforce strategic leadership and the visioning process, because senior leaders must be well versed in leading change in organizations and in integrating, synerizing and focusing the energies of diverse group. More about that: Philip M. Jones. "Developing Army Leaders for the 21st Century. Internet: http://204.7.226.75:443/force21/articles/armyled.html#fn1

education for transition to war. In time of mobilization training time must be shortened. Economies in training must be accomplished without severely impacting on the efficiency of the military force. Actually, officers should be prepared under mobilization time-frames with pre-mobilization efficiencies.

The objectives of the officer education systems at senior officer level are mostly to broaden and increase the professional competence of officers destined for assignment to senior executive positions in which they will be expected to poses the experience, specific skills, knowledge, and abilities to make a meaningful, professional contribution in that capacity.

It is necessary to find a logical system for determining how many officers of what specialties require field grade officer development education. Majority of the officer corps believes that the principal purpose of this training and education is to broaden the outlook of the officer in preparation for positions of increased responsibility. But, if broadening is truly the principal purpose of development training, how it is possible to quantify broadening.

When we are speaking about education and training high ranking officers we examine the development of senior field grade officers for performance of command and staff functions at levels of

responsibility adequate with their extensive experience and advanced rank. It is necessary to address at least five aspect of senior (field grade) officers education and training: (1) senior service colleges; (2) battalion and brigade equivalent pre-command courses; (3) continuing education and training for general-flag officers, (4) transition to war, and (5) individual permanent work on education and training progress.

Institutionalized program(s)[36] of continuing education and training for the general officers can be made at least from four perspectives: (1) the persistent perception at many levels that there are problems on general officers leadership; (2) selective analyses of exist industrial and educational management development philosophies; (3) the programs and attitudes of other services; (4) the views of the corps of general officers themselves.

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[36] Army general officer training courses in United States are devided into mandatory and optional. Mandatory courses are: Capstone General/Flag Officer Course, The Joint Flag Officer Warfighting Course (JFOWC), The Force Integration Course, Equal Opportunity Course, The General Officer Installation Command Course. Optional courses are: The Joint C2W Senior Theater Battle Commanders' Course (STBC), Defense Institute of Security Assistance Management Executive Course (DISAM-E), The Leadership Development Program (LPD), Leadership at Peak (LAP), The Joint Senior Psychological Operations Course (JSPOC), The Anti-Terrorist Driving Course, National Security Leadership Course, Congressional Awareness Orientation, General Officer Legal Orientation (GOLO), Army Communicator Workshop, DoD Executive Seminar Series. Briefing in Department of the Army, March 12, 1997.

4. Impact of the Revolution in Military Affairs on the Professional Education and Training

It is necessary to respect historical changes in nature of war. In that manner leadership development programs must shift that they accommodate the new conceptual, technical, and organizational skills required for leading the war in the information age.

War	Civil War	World War II	Gulf War	War of Tomorrow
Observe	Telegraph	Radio/Wire	Near Real Time	Real Time
Orient	Days	Hours	Minutes	Continuous
Decide	Weeks	Days	Hours	Immediate
Act	A Month	A Week	A Day	An Hour or Less
Battle	Vicksburg 1863	Bastogne 1944	Kuwait/Iraq 1991	Future Conflict 2010

Figure 6: Time and Command[37]

Illustrated changes (Figure 6) warn us about importance of preparation of professionals[38] for military obligations. As we look to

[37] See: Gordon R. Sullivan, and James M. Dubik: War in the Information Age. Carlisle: US Army War College, 1994: 2 - 8. By authors The Decision Cycle consist of observation, orientation, decision making, and acting.

[38] Nowadays we are eyewitnesses of the erosion of military profession worldwide supported by variety of technological and societal forces. The value system of the young is not close to patriotism, public service and self sacrifice -- concepts that are the roots of military professionals. The consequences of declining military professionals are serious.

the future, the answers to two related questions are of great importance. "First, how can we support professional military education to better understand and exploit the potential of the revolution in military affairs? Second, how ca we purchase the revolution in military affairs itself to make better professional military education?[39]

In the military the importance of education is greater than it is in any of other area. Nevertheless, if the nature of the national security environment is not understood in military, the implications especially on the battlefield could be immeasurable.

Military decisions often must be made under conditions of uncertainty and ambiguity. Responsible person is complicated not only by the rate of change on the battlefield, but also about that what the effects of a known change are. To a large extend uncertainty about effects results depends from the complexity of task. Battle is like competition between two sides. Competitive advantage is gained through surprise. The challenge of commander is recognizing the opportunity and the moment.

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[39] See: Kenney, Steven H. "Professional military education and the emerging revolution in military affairs." Airpower Journal, Vol. 10. No. 3 (Fall, 1996): 50.

4.1. Learned Lessons

About historical role of professional military education in developing revolutionary[40] approaches to military affairs is written very often. Many authors write that the importance of officer and other education in Germany[41] during the interwar period was enormous. At the beginning of interwar period Germans instituted policies that expanded and enhanced the education of the officer corps that later developed blitzkrieg concept and led Germany into World War II. Precommissioning educational program was "one of the most strenuous officer training system ever advised."[42] Officer candidates spent two years on practical academic and troop instruction with significant stresses on technology development. After that study and training they continued formal schooling at the unit level, including

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[40] Williamson Murray and Allan R. Millet in Military Innovation in the Interwar Period, New York: Cambridge University Press, 1996, write only about military innovations in cited period. The authors, actually, on that way do not agree about revolutionary approaches, but recognize only innovation, i.e. evolution in military affairs.

[41] During the World War II "on German side, ... was Hitler's propensity to decide all orders and strategy though he had no professional military training in these matters. Moreover, he set up a group of military subordinates as almost "administrative assistants" without any genuine authority. There was no opportunity for several outstanding generals to influence the scene. Hitler stifled the economic area too. Overly contends that factory for factory, the Allies made better use of their industry, improvising and using more mass production skills." Whitnah, Donald R.: "Why the Allies Won." Presidential Studies Quarterly: Vol. 26. No. 4 (Fall, 1996): 1172.

[42] James S. Corum. The Roots of Blitzkrieg Hans von Seekt and German Military Reform. Lawrence: University Press of Kansas, 1992: 82

preparation for the extremely demanding exam for entry into the General Staff.

Officers after completition of General Staff exam had four-year education and training which continued to stress technology applications, tactical decision making at the higher levels, and innovative concepts of waging war. Focus was on independent thinking. When World War II began, the officers had undergone and unique professional education process. This (re)organized army executed a revolutionary operational concept that arguably could not have been instituted without such stress on professional military development.

In United States[43] with the exception of the Naval War College, during the interwar period the higher level professional military education institutions were not in the business of innovation to the same extent as more specialized lower level branch schools. The impact of professional military education on military innovation during this period also varied by service. For example, the Army War College, US Army Command and General staff School, and the Army Industrial College all prepared officers for mobilization planning, as well as for

[43] "Franklin D. Roosevelt saw himself as the ringmaster of the coalition. Pragmatic to a high degree, FDR was obsessed with public opinion and popularity. He was difficult to pin down. ... Over rightfully tabs US General George C. Marshall as the epitome of the modern military manager. Marshall perceived the Atlantic-first strategy backed the cross channel attack when FDR wavered, and later drafted many of the president's military papers. He was indispensable to Roosevelt. Much akin to Atonov and Brooke, Marshal was disciplined, aloof, and a strict taskmaster." Whitnah, Donald R.: "Why the Allies Won." Presidential Studies Quarterly: Vol. 26. No. 4 (Fall, 1996): 1172.

staff duty at varying levels. These instructions transmitted doctrines already in widespread acceptance but did little experimentation or innovation. At the same time, each of the Army's branches maintained its own school, as they still do today. It was at this level that the Army educational establishment had the explicit mission to develop new doctrine, weapons, and tactics. These schools acted as think tanks and worked closely with the department and bureau staff to develop doctrinal and weapons innovations. Among the innovations developed in the branch schools were early theories about strategic bombardment (Air Corps Tactical School), mechanized warfare (Cavalry School), and the integration of radios and radar in ground campaigns (Signal Corps School). Unfortunately, the structure of the professional military education system was not well designed to institutionalize such innovations. Ideas that emerged in the branch schools tended to develop in isolation, partly because the higher level institutions made little effort to integrate new concepts for servicewide application. Those attempts that were made, primarily through board studies at the General Staff level, also did not have much success. More importantly, no doctrinal agency existed to draw together ongoing studies and experimentation, lessons of innovations observed in foreign nations, and lessons of training exercises.[44]

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[44] Discussion Dr. Allan Millett, Mason professor of Military History, Ohio State University, presentation to the Conference on Professional Military Education and the Emerging Revolution in Military Affairs,

4.2. The Professional Military Education and the Revolution in Military Affairs: Present and Future

Consideration about professional military education in the context of revolution in military affairs[45] is important because of the impact of this education can have on the officers: in terms of knowledge and in ways of looking on the world. Through education future military commanders can absorb knowledge about trends in politics, international relations, economics, technology, psychology, art in military strategy, operational planning.[46] All that is necessary for understanding of the nature and behavior of warfare.

The future will be characterized by an unprecedented interdependence of information and erosion of the barriers between areas of knowledge. In this future, we will look increasingly to professional military education to develop leaders who can bring to

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National Defense University, Washington, DC, 22-23 May 1995.

[45] Three components of revolution in military affairs are: (1) technological innovation, (2) operational innovation, and (3) organizational innovation.

[46] "To what extent must the future war planner or battlefield commander have mastered the nuances of chaos theory or computer programming? Might background in biotechnology or anthropology be a prerequisite for conducting future threat estimates? How might a course on successful (and unsuccessful) innovations in commercial business contribute to the development of future DOD concept developers and program managers?" asks Kenney, Steven H. in "Professional Military Education and the Emerging Revolution." Airpower Journal, Vol. 10, No. 3 (Fall, 1996): 50.

bear their education in a diversity of areas, including areas that may now seem well outside what has been considered military affairs.

Professional military education should be the environment in which future leaders make sharper their ability to think innovatively and futuristically. Impact of professional military education on the future officer's world-view is particularly important as we move into a period of potentially revolutionary change.

Importantly, profession military education institutions are an arena for the development of the doctrine. The development such doctrine will be long and careful process because we are only beginning to understand and articulate the shape of nature of the emerging revolution in military affairs.

For achieving all defined results it is necessary to stimulate innovations in educational technology and pedagogical methods. Some innovation in this area may facilitate military education in uniquely valuable ways, other may be inappropriate in the unique of professional military education. It is important to consider how "distance learning" techniques, multimedia instructional programs, artificial intelligence and "expert systems," virtual reality, and a host of other so-called hyper-learning tools might be utilized in professional military education. Incorporating these innovations into

professional military education offers benefits: attractive for their potential to directly facilitate learning, such tools and methodologies would also increase the officer-student's familiarity with an understanding of technologies and procedures likely to dominate the future operational and planning environment.

It is true that military personnel must assimilate the amount of information, but there are still only 24 hours in the day. It means, very important is to increase educational productivity in professional military education through extensive use of advanced educational technology and new pedagogical approaches.

We must consider the structure of overall professional military education system. Importance of specific service education remains great, but jointness is possible to realize only through common education.

Conclusion

For future development of land forces is basic (sometimes recruit) training very important, and it is organized on the basis of the six principles: (1) performance based instruction; (2) absolute criterion; (3) functional context; (4) individualization; (5) feedback; and (6) quality control. In future basic training will have to be integrated with advance

training at least for combat re-entry job-producing programs. The reasons are that such integration produces more highly qualified and motivated soldiers in less time and less cost. That training is important for future military leaders (officers) and other professionals (mostly soldiers).

Exist many sources from which new officers are commissioned into land forces. Exist some different problems, especially: (1) many students, officer candidate, drop out during first two year study at universities; In some countries up to 70%; (2) everywhere is no initial measurement of medical status, physical fitness, leadership potential, or even motivation for military; (3) intelligence standards are inadequate or do not exist; (4) scholarships or equivalent are awarded annually, many times without basic guidance and control; (5) in scholarship program or equivalent more than one half of colleges or equivalent do not have opportunity to participate; and (6) every where exist shortfall for officer accessions nowadays and in the future.

In this research is spoken mostly about revolution in military affairs and their impact on the education and training of land forces. Written words are not introduce real and whole picture of one military -- land forces -- but there is an experiment to find out main trends -- generally speaking -- in different armed forces.

Very important goal today -- and in the future more important -- is *faculty development*. A good faculty may not make a poor education and training system successful, but poor faculty can easily doom even the best system. Today's education and training system falls short of the faculty development in few aspects: (1) there is no real long term program for faculty development at the various schools; (2) there is no speciality in personnel list to recognize the very real need for military subject experts; (3) neither the officer corps in general nor assignments personnel in particular look upon duty as a member of the faculty at various speciality schools as particularly prestigious or career enhancing.

Foreign language skills are actually important to the officer corps at a variety of competency level. There is clearly need for great linguistic capability on the part of those who deal in intelligence matters or whose duties put them in constant contact with representatives with other nations. Foreign language skills is needed for study foreign armed forces, their doctrines, strategy, and tactics. That skills is necessary to maintain.

Certain skills and knowledge needed in land forces are imparted on the level of *graduate education*. About that area of education exist only yearly reports about the status of officer corps, but almost nothing about impact of land forces' command on creating the different

curriculums. Now the various specialities have been recognized and designated, it would seem that speciality proponents should take an active part in the justification process. In US land forces (Army, Marine, and Army National Guards) is that process about the end, but in some another is at beginning.

With careful analyze the education and training activities in a number of successful businesses is very important and implications were drawn on few levels. Many times we can find great similarities between military and civilian approaches. Land forces has seen fit to send a number of relatively senior officers annually to *Management and Executive Development Programs*. The benefits are not easy quantified and qualified.

In terms of a system as a whole certain new features are particularly important to the sense of belonging, of fulfillment, and subsequent commitment a young officer. We have sought to place better trained commanders in role model positions for longer periods of time and we have specifically charged them with increased responsibility for the development of their subordinates. This enhanced relationship is vital.

Today's military is split down to the middle in the field grade ranks between those who are selected for staff colleges and those who are not. The

unselected half have no real hope of becoming commanders or of going to senior service schools, and their promotion prospects are bleak. And in that area exist certain demotivating elements that are very important for future (un)development of land forces.

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